

CLAIMS

1. Quick anchoring equipment, which includes the following components:
 - a segment of chain cable (31);
 - a hook (32);
 - a fastener (35);
 - a fairlead (33);
 - a segment of cable (37); and
 - a floatation device (36),which are mounted together which connect an anchoring line (2) to an anchoring system (4), which includes:
 - an anchoring device (4a), fixedly attached to the sea bed (8);
 - an anchor chain cable (4b), one end of which is attached to the anchoring device (4a); and
 - a shackle (4c), which is supported by a buoy (4d) and is connected to another end of the anchor chain cable (4b);wherein:
 - the first end (31a) of the segment of chain cable (31) to be connected to the anchoring line (2), through a connection (2a);
 - the segment of chain cable (31) to be provided with a length of cable (L1);
 - the hook (32) with a connecting end (32a) connected to the second end (31b) of the segment of chain cable (31);
 - the hook (32) with one end (32b) in the form of a ring;
 - the first end (37a) of the cable segment (37) to also be connected to the first end (31a) of the segment of chain cable (31);
 - a segment of cable (37) to be extended by a another length of cable (L3);
 - the second end (37b) of the cable segment (37) to be connected to a fastener (35);
 - the floatation device (36) to also be connected to the second end (37b) of the cable segment (37), through a linking element (38);
 - the first end (33a) of the fairlead (33) to be attached to an end ring (32b) on the hook (32), the second end (33b) of the fairlead (33) provided with a loop (34);

the length (L1) of the chain cable segment (31) will parallel the precision ray [laser] used by the boat (5) to place itself above the position of the anchoring device (4a) on the sea bed;

the length of chain (L3) to be sufficient to hold the fastener (35) out of the area of poor visibility (7) on the sea bed (8);

a length (L2) of the fairlead (33) to be equal to the difference between the length (L1) of the chain cable segment (31) and the length (L3) of the cable segment (37); and

a length (L4) of the anchor chain cable (4b) to be longer than the height of the area of poor visibility (7).

2. Quick anchoring equipment in accordance with claim 1 characterized by the length (L1) of chain cable (31) to measure between 20 and 35 meters.

3. Quick anchoring equipment in accordance with claim 2 characterized by a length (L1) of chain cable (31) the optimal length being 25 meters.

4. Quick anchoring equipment in accordance with the claim 1 or 2 characterized by the hook (32) to have one free side provided with a ring (32b).

5. Quick anchoring equipment in accordance with any of the prior claims characterized by the fairlead (33) and the cable segment (37) each one being comprised of a steel cable.

6. Quick anchoring equipment in accordance with claims 1 through 5, characterized by the fairlead (33) and the cable segment (37) to be manufactured of synthetic material.

7. Quick anchoring equipment in accordance with claim 5 or 6, characterized by the cable segment (37) to be provided with a length of cable (L3) that allows the attachment of a fastener (35) that may be kept out of the area of poor visibility (7) on the sea bed (8).

8. Quick anchoring equipment in accordance with claim 7, characterized by a length of cable (L3) to measure between 1.5 and 2.5 meters.

9. Quick anchoring equipment in accordance with claim 8 characterized by the length of cable (L3) with optimal length of 1.5 meters.

10. Quick anchoring equipment in accordance with claims between 1 and 9, characterized by a length of cable (L4) to be longer than the height of the area of poor visibility (7).

11. Quick anchoring equipment in accordance with claim 10, characterized by the length of cable (L4) to measure between 1.5 and 2.5 meters

12. Quick anchoring equipment in accordance with claim 11, characterized by length of cable with (L4) optimal length being 2 meters.

13. Method to use the quick anchoring equipment (30) described in claims 1 to 12, for the connection of an anchoring line (2) to an anchoring system (4), the method being characterized by the following steps:

in a boat, (5), carry the anchoring line (2) to a position on the surface of the ocean that is vertically over the anchoring system (4). The quick anchoring equipment (30) is attached to one end of said anchoring line (2);

lower the anchoring line (2), provided with the quick anchoring equipment (30), in such a way that said anchoring line (2) is fully extended and a second end (33b) of the fairlead (33) is turned towards the sea bed (8), and located below the segment of chain cable (31);

stop the descent of the anchoring line (2) when the loop (34) is located at distance (L5) above the floor of the ocean (8);

capture and seize the loop (34), located on the second end (33b) of the fairlead (33), using the claws (6a) of the ROV (6). The ROV will then move away (6);

continue lowering the anchoring line (2) until the entire quick anchoring equipment (30) is placed on the sea bed (8);
move the ROV (6) in the direction of the shackle (4c);
slip the loop (34) through the shackle (4c), with the help of the ROV (6);
move the ROV (6) in the direction of the floatation device (36), which is connected to the fastener (35), that the fairlead (33) will pass through the shackle (4c);
connect the loop (34) to the fastener (35), with the help of the ROV's (6) claws (6a);
pull and hoist the anchoring line (2);
while in the boat, connect the other end of the anchoring line (2) (that is on the surface) (5), to a floating structure (1),
use existing tensioning devices on the floating structure (1) to apply tension to the anchoring line (2), until the desired configuration is obtained.

14. Connection method for quick anchoring, in accordance with claim 11, characterized by the length of cable (L5) to be half of the length (L2) of the fairlead (33).

15. Method to use the quick anchoring equipment (30), described in claims 1 through 10, in order to disconnect an anchoring line (2) from an anchoring system (4), the method being characterized by the following steps:

bring the end of the anchoring line (2) that was connected to a floating structure (1) into a boat (5);
drive the boat to a position (5) on the surface of the ocean that is located vertically over anchoring system (4). Keep the anchoring line (2) taut;
lower the anchoring line at this point (2) until the quick anchoring equipment (30) is placed on the sea bed;
with the help of an ROV (6) locate the floatation device (36) and consequently the fastener (35);
disconnect the loop (34) of the fastener (35) next to the floatation device (36);
hoist the anchoring line (2) with the quick anchoring equipment (30) attached to the end.